IN THE CLAIMS:

Please cancel claims 1-16.

Please add new claims 17-41 as follows:

1-16. (Canceled)

17. (New) A method for indicating on a data medium a sector referenced by a binary word consisting of a number M of first bytes that each include a number L of bits, said method comprising the steps of:

providing a data medium; and

etching onto the data medium, locally at the sector, a succession of M second bytes that each correspond to one of the M first bytes referencing the sector, each of the second bytes being equal to a vector having N components, each with a value of +1 or -1, such that $N=2^L-1$ and such that the scalar product of the vector with any other vector to which another of the second bytes is equal, is at most equal to +1.

18. (New) The method according to claim 17, wherein one of the value of +1 and the value of -1 is etched by modifying an amplitude of a groove wobble period on the data medium.

19. (New) The method according to claim 17, wherein one of the value of +1 and the value of -1 is etched by multiplying by three an initial wobble frequency over a whole initial alternation period.

20. (New) The method according to claim 17, further comprising the step of etching onto the data medium a synchronization byte at the head of the succession of M second bytes, the synchronization byte consisting of a maximum length binary sequence of P bits, with P being greater than N.

21. (New) The method according to claim 20, wherein M=12, L=4, and P=63.

22. (New) The method according to claim 21,

wherein the component values of each of eight first vectors result from a different circular permutation over the same first maximum length binary sequence of fifteen values, and

the component values of each of eight other vectors are of opposite sign to the component values of a different one of the eight first vectors.

23. (New) The method according to claim 17,

wherein the component values of each of 2^{L-1} first vectors result from a different circular permutation over the same first maximum length binary sequence of N values, and

the component values of each of 2^{L-1} other vectors are of opposite sign to the component values of a different one of the 2^{L-1} first vectors.

24. (New) The method according to claim 17,

wherein the data medium includes a plurality of sectors, and

the etching step is performed for each of the sectors of the data medium.

25. (New) A data medium comprising:

a plurality of sectors for storing computer data, each of the sectors being referenced by a binary word consisting of a number M of first bytes that each include a number L of bits; and

a succession of M second bytes etched locally at one of the sectors, each of the second bytes corresponding to one of the M first bytes referencing the sector, each of the second bytes being equal to a vector of N components, each with a value of +1 or -1, such that $N=2^{L}-1$ and such that the scalar product of the vector with any other vector to which another of the second bytes is equal, is at most equal to +1.

26. (New) The data medium according to claim 25, wherein one of the value of +1 and the value of -1 is etched as a modified amplitude of a groove wobble period on the data medium.

27. (New) The data medium according to claim 25, wherein one of the value of +1 and the value of -1 is etched as three alternations of frequency three times greater than an initial groove wobble frequency on the data medium, added onto a wobble period of the groove.

28. (New) The data medium according to claim 25, further comprising a synchronization byte etched at the head of the succession of M second bytes, the synchronization byte consisting of a maximum length binary sequence of P bits, with P being greater than N.

29. (New) The data medium according to claim 28, wherein M=12, L=4, and P=63.

30. (New) The data medium according to claim 29,

wherein the component values of each of eight first vectors result from a different circular permutation over the same first maximum length binary sequence of fifteen values, and

the component values of each of eight other vectors are of opposite sign to the component values of a different one of the eight first vectors.

31. (New) The data medium according to claim 25,

wherein the component values of each of 2^{L-1} first vectors result from a different circular permutation over the same first maximum length binary sequence of N values, and

the component values of each of 2^{L-1} other vectors are of opposite sign to the component values of the different one of 2^{L-1} first vectors.

32. (New) The data medium according to claim 25, wherein a succession of M second bytes is etched locally at each of the sectors of the data medium.

33. (New) An integrated circuit for detecting on a data medium a sector referenced by a binary word, said integrated circuit comprising:

a correspondence table that matches a succession of M first bytes forming a binary word with a succession of M second bytes, each of the first bytes having a number L of bits and each of the second bytes corresponding to one of the M first bytes, each of the second bytes being equal to a vector of N components, each with a value of +1 or -1, such that $N=2^L-1$ and such that the scalar product of the vector with any other vector to which another of the second bytes is equal, is at most equal to +1; and

a logic unit for forming the scalar product of a first vector of the correspondence table with a second vector originating from a received signal, and for detecting that the second vector matches one of the first bytes when the scalar product of the first and second vectors is substantially greater than +1.

34. (New) The integrated circuit according to claim 33, wherein the logic unit also detects a synchronization byte from the received signal.

35. (New) The integrated circuit according to claim 33, wherein M=12 and L=4.

36. (New) An apparatus for indicating on a data medium a sector referenced by a binary word consisting of a number M of first bytes that each include a number L of bits, said apparatus comprising:

a write head;

a servo coupled to the write head; and

a logic unit coupled to the write head and the servo, the logic unit controlling the servo and the write head so as to etching onto the data medium, locally at the sector, a succession of M second bytes that each correspond to one of the M first bytes referencing the sector, each of the second bytes being equal to a vector having N components, each with a value of +1 or -1, such that $N=2^L-1$ and such that the scalar product of the vector with any other vector to which another of the second bytes is equal, is at most equal to +1.

37. (New) The apparatus according to claim 36, wherein one of the value of +1 and the value of -1 is etched by modifying an amplitude of a groove wobble period on the data medium.

38. (New) The apparatus according to claim 36, wherein one of the value of +1 and the value of -1 is etched by multiplying by three an initial wobble frequency over a whole initial alternation period.

39. (New) The apparatus according to claim 36, wherein the logic unit controls the servo and the write head so as to also etch onto the data medium a synchronization byte at the head of the succession of M second bytes, the synchronization byte consisting of a maximum length binary sequence of P bits, with P being greater than N.

40. (New) The apparatus according to claim 39, wherein M=12, L=4, and P=63.

41. (New) The apparatus according to claim 36, wherein the logic unit controls the servo and write head so as to etch a succession of M second bytes locally at each of a plurality of sectors of the data medium.